

Serial No. 09/987,752
Amdt. dated July 8, 2004
Reply to Office Action of March 4, 2004

Docket No. MRE-0038

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~In a~~ surface mounting device including an X-Y gantry mounted on a base frame, a plurality of head units mounted on predetermined positions of the X-Y gantry, a parts feeder for supplying parts to be mounted on a printed circuit board carried to a parts mounting work position, the surface mounting device comprising:
 - a plurality of transfers movably mounted on ~~both sides of the base frame in parallel with each other~~opposite sides of the base frame;
 - a driving means for moving the plurality of transfers;
 - a plurality of movable conveyors that are movable in X and Y directions mounted between the plurality of transfers; and
 - a plane power transmission device for generating a driving force for moving the plurality of conveyors into in X and Y directions.

2. (Currently Amended) The surface mounting device of claim 1, wherein the plurality of transfers comprises ~~a~~-first and ~~a~~-second transfers and the first and the second transfers comprise~~s~~each comprise:

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a ~~first and a second~~ transfer base frames frame for guiding the a printed circuit board; respectively;

~~a first and a second transfer rollers mounted on a predetermined position of the first and the second base frames, respectively, for carrying the printed circuit board~~the base frame;

a ~~first and a second~~ belt members member mounted connectively to on the first and the second transfer rollers.

3. (Original) The surface mounting device of claim 1, wherein the driving means is a moving magnet type linear motor.

4. (Original) The surface mounting device of claim 1, wherein the driving means is a moving coil type linear motor.

5. (Original) The surface mounting device of claim 1, wherein the driving means is any one among a ball screw, a belt type power transmission means, and a linear power transmission means.

6. (Currently Amended) The surface mounting device of claim 1, wherein the plurality of conveyors comprises a ~~first and a second~~ conveyors, and the wherein the first conveyor comprisesand second conveyors each comprise:

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a first conveyer base frame;

a first conveyer transfer roller configured to be rotated for transferring the a printed circuit board carried by the first transferone of the plurality of transfers to a parts mounting work position;

a first conveyer lifting member for lifting the printed circuit board to a predetermined height and then lowering the printed circuit board when the mounting of parts is finished; and

a first conveyer discharging roller for discharging the printed circuit board to the second transfer, and

~~the second conveyer comprises:~~

~~a second conveyer base frame;~~

~~a second conveyer transfer roller rotated for transferring the printed circuit board carried by the first transfer to a parts mounting work position;~~

~~a second conveyer lifting member for lifting the printed circuit board to a predetermined height and then lowering the printed circuit board when the mounting of parts is finished; and~~

~~a second conveyer discharging roller for discharging the printed circuit board to the second transferone of the pluarlity of transfers.~~

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7. (Currently Amended) The surface mounting device of claim 6, wherein a ~~first and a second plane movers are~~ mover is mounted to ~~a lower portions of the plurality of conveyers, respectively~~ portion of each of the plurality of movable conveyers.

8. (Currently Amended) The surface mounting device of claim 1, wherein the plurality of conveyers each further ~~comprises~~ comprise a controller connected to a drive circuit for ~~carrying moving~~ the printed circuit board with various speeds.

9. (Currently Amended) The surface mounting device of claim 4~~7~~, wherein the plane power transmission device comprises a plane stator frame, and a ~~first and a second~~ the plane movers carried with a predetermined direction ~~at~~ of the plurality of conveyers are moved over an upper portion of the plane stator frame.

10-12. (Cancelled).

13. (New) A surface mounting device, comprising:
an X-Y gantry mounted on a base frame;
at least one parts mounting head coupled to the X-Y gantry;
at least one transfer that is movably mounted on the base frame, wherein each transfer is configured to transfer circuit boards; and

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at least one conveyer movably mounted on the base frame, wherein each conveyer is configured to hold and move a circuit board, and wherein each conveyer is configured move in X and Y directions to move a circuit board to a plurality of different parts mounting positions.

14. (New) The surface mounting device of claim 13, wherein each conveyer is also configured to receive a circuit board from a transfer, and to discharge a circuit board to a transfer.

15. (New) The surface mounting device of claim 13, wherein each transfer is configured to move in a predetermined direction to align with conveyers located at different positions on the base frame.

16. (New) The surface mounting device of claim 13, wherein each transfer is configured to move in a predetermined direction to thereby align with either of two conveyers that are positioned side-by-side on the base frame.

17. (New) The surface mounting device of claim 13, further comprising at least one transfer driver configured to move the at least one transfer.

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18. (New) The surface mounting device of claim 17, wherein the at least one transfer driver is selected from the group consisting of a ball screw driver, a belt type driver, and a linear motor.

19. (New) The surface mounting device of claim 13, further comprising at least one conveyer driver configured to move the at least one conveyer in X and Y directions.

20. (New) The surface mounting device of claim 19, wherein the at least one conveyer driver comprises a plane power transmission device.

21. (New) The surface mounting device of claim 20, wherein the plane power transmission device comprises:

a plane stator mounted on the base frame; and

a mover coupled to a bottom of each at least one conveyer, wherein each mover is configured to interact with the plane stator to generate a force that moves the at least one conveyer in X and Y directions.

22. (New) The surface mounting device of claim 13, wherein the at least one transfer comprises first and second transfers mounted on opposite side of the base frame, and wherein

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the at least one conveyer comprises a plurality of conveyers that are independently movable in X and Y directions.

23. (New) The surface mounting device of claim 22, further comprising a plane power transmission device configured to move the plurality of conveyers, wherein the plane power transmission device comprises:

a plane stator mounted on the base frame; and

a mover coupled to a bottom of each of the plurality of conveyers, wherein each mover is configured to interact with the plane stator to generate a force that moves the conveyer in X and Y directions.

24. (New) The surface mounting device of claim 23, wherein the first and second transfers are configured to that they can move to align with conveyers located at a plurality of different positions on the base frame.